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Automatic view selection through depth-based view stability analysis

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Although the real world is composed of threedimensional objects, we communicate information using two-dimensional media. The initial 2D view we see of an object has great importance on how we perceive it. Deciding which of the all possible 2D representations of 3D objects communicates the maximum information to the user is still challenging, and it may be highly dependent on the addressed task. Psychophysical experiments have shown that three-quarter views (oblique views between frontal view and profile view) are often preferred as representative views for 3D objects; however, for most models, no knowledge of its proper orientation is provided. Our goal is the selection of informative views without any user intervention. In order to do so, we analyze some stability-based view descriptors and present a new one that computes view stability through the use of depth maps, without prior knowledge on the geometry or orientation of the object.We will show that it produces good views that, in most of the analyzed cases, are close to three-quarter views.

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